I CLAIM:

1. A system for monitoring satellite signal deformation, comprising in combination:

a correlator operable to determine a plurality of correlation measurements for each of a plurality of satellites at points along a correlation curve, wherein each correlation measurement is based upon a correlation between a received satellite signal and a reference;

a correlation transformation operable to subtract a mean over the plurality of satellites from each of the plurality of correlation measurements, whereby bias from front end signal deformation is removed from the plurality of correlation measurements; and

a fault detector operable to determine a discriminator based on a plurality of differences between the plurality of correlation measurements and the correlation curve and to detect signal deformation based on a magnitude of the discriminator.

2. The system of claim 1, wherein the plurality of correlation measurements is calculated according to the following equation:

$$\hat{f}_k = f_k[m,n] - \frac{1}{(N-1)} \sum_{i=1, i\neq n}^{N} f_k[m,i].$$

3. The system of claim 2, wherein the standard deviation of the plurality of correlation measurements is calculated according to the following equation:

$$\sigma^2 = \sigma_k[m,n]^2 + \frac{1}{(N-1)^2} \sum_{i=1, i\neq n}^{N} \sigma_k[m,i]^2$$

4. The system of claim 1, wherein the fault detector is operable to calculate a differential measurement by determining a difference between a pair of correlation measurements.

5. The system of claim 4, wherein the differential measurement is calculated according to the following equation:

$$\hat{e}_k\,[m,n] = e_k\,[m,n] - \frac{1}{(N-1)} \sum_{i=1, i\neq n}^{N} e_k\,[m,i].$$

6. The system of claim 5, wherein the standard deviation of the differential measurement is calculated according to the following equation:

$$\sigma^2 = \sigma_k[m,n]^2 + \frac{1}{(N-1)^2} \sum_{i=1, i\neq n}^{N} \sigma_k\,[m,i]^2$$

7. A method of monitoring satellite signal deformations that is independent of deformations occurring at a front end of a receiver, comprising in combination:

correlating a received satellite signal with a reference signal in order to determine a plurality of correlation measurements at points along a correlation curve;

transforming the plurality of correlation measurements by subtracting a mean over a plurality of satellites from each of the correlation measurements;

determining a plurality of differences between the transformed correlation measurements and the correlation curve; and

detecting signal deformation based on magnitudes of the plurality of differences between the transformed correlation measurements and the correlation curve.

8. The method of claim 7, wherein transforming the plurality of correlation measurements is performed using the following equation:

$$\hat{f}_k = f_k[m,n] - \frac{1}{(N-1)} \sum_{i=1,i\neq n}^{N} f_k[m,i].$$

9. The method of claim 8, wherein the standard deviation of the plurality of correlation measurements is calculated according to the following equation:

$$\sigma^2 = \sigma_k[m,n]^2 + \frac{1}{(N-1)^2} \sum_{i=1,i\neq n}^{N} \sigma_k[m,i]^2$$

10. The method of claim 7, further comprising calculating a differential measurement by taking a difference between a pair of correlation measurements.

11. The method of claim 10, wherein calculating the differential measurement is performed according to the following equation:

$$\hat{e}_k[m,n] = e_k[m,n] - \frac{1}{(N-1)} \sum_{i=1,i\neq n}^{N} e_k[m,i].$$

12. The method of claim 11, wherein the standard deviation of the differential measurement is calculated according to the following equation:

$$\sigma^2 = \sigma_k[m,n]^2 + \frac{1}{(N-1)^2} \sum_{i=1,i\neq n}^{N} \sigma_k[m,i]^2$$

13. A satellite signal deformation monitoring system, comprising in combination:

a processor;

memory; and

machine language instructions stored in the memory executable by the processor to:

correlate a received satellite signal with a reference signal in order to determine a plurality of correlation measurements at points along a correlation curve;

transform the plurality of correlation measurements by subtracting a mean over a plurality of satellites from each of the correlation measurements;

determine a plurality of differences between the transformed correlation measurements and the correlation curve; and

detect signal deformation based on magnitudes of the plurality of differences between the transformed correlation measurements and the correlation curve.